

SOV/91-58-2-3/31

Reduction in Number of a ~~Thermoelectric~~ Power Plant's Personnel

automatic remote-control system of the  
boiler's water-feeding has been introduced.  
A new device for the control of the water  
level in the drum has been installed.  
There is 1 diagram.

Card 2/2

AUTHOR: Mozzhukhin, Ch. N., Engineer SCV-91-58-11-7/20

TITLE: The Automatic Starting of a Reserve Turbine Pump (Avtomaticheskiy vvod rezervnogo turbonasosa)

PERIODICAL: Energetik, 1958, Nr 11, pp 17-18 (USSR)

ABSTRACT: In the TETs of the plant, series PT turbine feed pumps with a capacity of 50 cu.m. per hr. have been installed. The driving turbine works at about 5000 rpm. A collective of the workers of the electric power-station have developed and realised a system for the automatic starting of the reserve turbine feed pumps whenever the water pressure in the pressure collector fell. The system consisted of mounting an electric drive, switched on by a contact pressure-gage installed in the pressure collector of the feed pumps, to the quick-action shut-off valve of the turbine.

Card 1/2

SOV-91-58-11-7/20

The Automatic Starting of a Reserve Turbine Pump

A detailed description of the system follows. V.G. Al'perovich, Chief Engineer of the TETs, Ch.N. Mozzhukhin, Head of the Turbine Workshops, and V.V. Rudakov, Foreman of the Electric Power Workshops of the TETs took part in the development of this device. There are 2 diagrams.

Card 2/2

1. Feed pumps--Operation

IONOVA, L.V.; MOFFHUNEN, L.L.; MOSKOWA, Ye.A.

Synthesis of tetrapeptides. Zhur. ob. khim. 34 no. 3:268-272  
Mr '64. (MIRA 17:6)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.

MOZZHUKHIN, D.I., LUTSENKO, M.I., ALI-KHAN, S.M., and others.  
BELOJOVSKY, V.M.

Fluorine catalysis of hydrazine decomposition of pyridines  
and similar compounds. Dokl. Akad. Nauk SSSR, 1974, 235, 1694-1695.

1. Introduction and experimental

MOZZHUKHIN, E.A., tekhnik-leytenant

Doublecheck... Vest.Vozd.Fl. no.7:67-68 J1 '60.  
(MIRA 13:7)

(Airplanes--Maintenance and repair)

L 18550-63

EWI(q)/EWT(m)/BDS AFFTC/ASD JD/JG

ACCESSION NR: AP3001701

3/0126/63/015/005/0748/0753

AUTHORS: Yelyutin, V.P.; Natanson, A.K.; Mozukhin, K.I.; Vasil'yev, O.A.

TITLE: Investigation of internal friction in tungsten VA-3 wire

SOURCE: Fizika metallov i metallovedeniye, v. 15, no. 5, 1963, 748-753

TOPIC TAGS: tungsten, internal friction, tungsten VA-3 wire

ABSTRACT: The internal friction in the four samples of the VA-3 wire (used in the production of electric bulb filament) has been studied at temperatures up to 2270K. The results obtained were compared with the internal structure of the wire and its residual elongation values obtained from the creep test. The wire was 1.25 mm in diameter, the load was 2 kg, and the time interval was 4 hours. Before the internal friction was measured the wire was drawn to a diameter of 0.52 mm. Measurements were taken twice--immediately after the drawing and again during the second annealing. Curves expressing relation of temperature to internal friction of the wire with a considerable residual elongation had a peak at 2100-2150K caused by recrystallization. This peak was absent in the case of small elongations because of its shift into the higher temperature region. The internal friction level at the second measurement was correlated to the sample behavior during the first measurement. Samples with the recrystallization process arrested during the

Card 1/2

L 18550-63

ACCESSION NR: AP3001701

first measurement had small friction values; those with a continued recrystallization had large friction values. Orig. art. has: 1 table and 4 figures.

ASSOCIATION: Moskovskiy institut stali i splavov (Moscow Institute of Steel and Alloys)

SUBMITTED: 21Jun62

DATE ACQ: 11Jul63

ENCL: 00

SUB CODE: ML

NO REF SOV: 002

OTHER: 003

Card 2/2



*Mozzhukhin, M.G.*

MOZZHUKHIN, M.G., inzh.; POLISHCHUK, V.L., inzh.

Double shaft Brown-Boveri gas turbine with a 10,000 kw  
capacity. Energomashinostroenie 3 no.12:44-48 D '57. (MIRA 11:1)  
(Gas turbines)

MOZZHUKHIN, N.

Improving economic accountability in grain receiving enterprises.  
Muk.-elev. prom. 27 no.12:3 D '61. (MIRA 15:2)  
(Grain trade—Accounting)

AUTHOR: Mozzhukhin, N.D.

SOV/91-58-1-10/20

TITLE: Interplant Competition and Introduction of **the Latest** experience (Mezhzavodskoye sorevnovaniye i vvedeniye **the Latest** vogo opyta)

PERIODICAL: Energetik, 1958. Nr 12, pp 32-34 (USSR)

ABSTRACT: This is an article pleading for interplant competition and the **dissemination of the latest** experience. A long series of examples is given to prove the usefulness of such competition and exchange of experience.

Card 1/1

( )  
AUTHOR:

Mozzhukhin, N.D.

SOV/91-52-7-17/01

TITLE:

Raising the Communist Consciousness of the Workers  
Is the Most Important Task of the Trade-Union Work

PERIODICAL:

Energetik, 1959, Nr 7, pp 36-37

(HQBPA)

ABSTRACT:

The author describes briefly the tasks of the Soviet trade unions. Their primary task is raising the communist consciousness of the workers. Put beside this, the trade unions must organize competitions and training of workers, providing libraries for improving their professional knowledge and their cultural level.

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25 (5)

SOV/91-59-11-23/27

AUTHOR: Mozzhukhin, N.D.

TITLE: Filling the Tasks of the Seven-Year Plan Ahead of Schedule

PERIODICAL: Energetik, 1959, Nr 11, pp 37-38 (USSR)

ABSTRACT: The author discusses the work of the power plant employees of the Yaroslavl' sovnarkhoz. At TETs Nr 1, three boilers were originally scheduled for conversion for firing peat. Instead, two will be converted for firing liquid fuel. - At TETs Nr 2, turbines will be overhauled once within two years. - At the construction site of the new TETs Nr 3, the planned construction of a temporary boiler house was abandoned. Also the planned construction of a power line IvGRES - Gavrilov - Yam will be abandoned. It is planned to increase the temperature of heating water to 150°C in the district heating system. These measures will save more than 17 million rubles. Using comprehensive mechanization for cutting peat will increase the labor productivity by 13%

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SOV/91-59-11-23/27

Filling the Tasks of the Seven-Year Plan Ahead of Schedule

and reduce the production cost of peat by 23%. - At the power plants of the Yaroslavl' sovnarkhoz, 20 improvements were achieved by introducing automation and modern methods, although only 11 of them were planned for the first six months of 1959. One boiler of YarGRES was converted for firing loose peat and a hydraulic ash trap was installed. At TETs Nr 1 a new turbogenerator was put into operation; the steampipe-line valve operation was mechanized. - At the Yaroslavl' GRES, A.I. Sokolov is the chairman of a group of inventors and efficiency experts. Employees of the transportation section of this power plant manufactured a diesel locomotive from a series 159 steam locomotive. An electropneumatic system of operating RR switches from a control point was installed. An experimental model of a self-unloading RR car for peat was built. - TETs Nr 1 of the Yaroslavl' sovnarkhoz was the best power plant in a competition of introducing more efficient methods. - Besides these posi-

Card 2/3

SOV/91-59-11-23/27

Filling the Tasks of the Seven-Year Plan Ahead of Schedule

tive results, there are serious deficiencies at a number of plants, where available devices are not used for the mechanization of heavy work. The Volzhskiy zavod vysokovol'tnykh opor (Volzhsk Plant for High-Voltage Towers) started the production of a new type of tower with pre-stressed reinforcements. However, only one of the three machines for producing these towers is in operation because the capacity of a power substation is inadequate. - At TETs Nr 2 an imported crane-transloader remained inactive for the fifth consecutive year. Buildings, structures and equipment having a total value of 9 million rubles are incomplete at this power plant. These facts are not only a blame for the leading employees, but for the trade union officials as well, who perform an inadequate control on the introduction of new devices.

Card 3/3

27661

S/024/61/000/004/019/025  
E140/E563

16,4000(1121,1329,1344)

AUTHOR: Mozzhukhin, N.M. (Leningrad)

TITLE: On the use of analog computers for the statistical analysis of linear automatic control systems

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1961, No.4, pp.163-167

TEXT: The work considers automatic control systems described by systems of linear differential equations with variable coefficients constituting continuous functions of time in a given interval and with perturbations constituting continuous pairwise independent random processes with given mathematical expectations. The initial conditions also satisfy this definition. It is required to find the mathematical expectations and dispersions of the system coordinates at any time after the origin. V. S. Pugachev (Ref.1: The theory of random functions and its application to automatic control problems. Fizmatgiz, 1960) has solved this problem by means of canonical expansions of the random functions. This, as well as other proposed solutions, requires repetitive operation of the analog computer. The author

Card 1/2

f



27662

On the use of analog computers ... S/024/61/000/004/019/025  
E140/E563

demonstrates that the use of the conjugate-system equations permits modelling so that the solution is found with a single run of the model. An example is given of a first-order system. There are 2 figures and 6 references: all Soviet (one a translation from work of non-Soviet authors).

SUBMITTED: March 31, 1961

Card 2/2

LEEDEV, Andrey Nikolayevich; GINZBURG, R.I., kand. tekhn. nauk,  
retsenzent; MAGIN, S.M., inzh., retsenzent; ~~MOZZHIKHIN,~~  
~~N.M., kand. tekhn. nauk, retsenzent;~~ TREVOGIN, P.A., kand.  
tekhn. nauk, retsenzent; TSEYTLIN, Ya.M., nauchnyy red.;  
LESKOVA, L.R., red.; ERASOVA, N.V., tekhn. red.

[Modeling of transcendental equations] Modelirovanie  
transsendentnykh uravnenii. Leningrad, Sudpromgiz, 1963.  
187 p. (MIRA 16:5)

(Mathematical models)

~~MOZZHUKHIN, N.N.~~

Measuring the amplitude modulation coefficient, Izv. tekhn. no. 4:  
83-85 JI-Ag '57. (MIRA 10:8)

(Electronic instruments)

MOZZHUKHIN, N.N.

Errors in measuring amplitude modulation factor. Izv.tekh.  
no.8:56-59 Ag '62. (MIRA 16:4)  
(Modulation (Electronics)--Measurement)

ACCESSION NR: AP4043270

S/0154/64/000/002/0103/0109

AUTHOR: Mozzhukhin, O. A. (Aspirant)

TITLE: On the accuracy of determining the index of refraction at a station for radiogeodesic measurements

SOURCE: IVUZ. Geodeziya i aerofotos"yemka, no. 2, 1964, 103-109

TOPIC TAGS: refractive index, radio geodesy, barometric pressure, temperature measurement, atmospheric temperature

ABSTRACT: The accuracy of determining the refraction index for wave propagation through the earth's atmosphere was declared to be dependent upon three measurements: 1) temperature  $t$ ; 2) barometric pressure  $P$ ; and 3) absolute air humidity  $e$ . In order to gain an accuracy of  $\pm 0.2 \cdot 10^{-6}$  in refraction index measurement, accuracies of  $\pm 0.5^\circ\text{C}$  for temperature,  $\pm 0.6 \text{ mm Hg}$  for humidity, and  $\pm 1 \text{ mm Hg}$  for barometric pressure are necessary. The accuracy of the three important measurements are limited by: 1) the errors in measuring air temperature in natural conditions of turbulence at the earth's surface have significant time (seasonal) and space variations and depend upon the degree of thermodynamic stability of the atmosphere; 2) autumn temperature measurements are characterized by a mean error of  $\pm 0.3-0.04^\circ\text{C}$  with maximum errors occurring on cloudy autumn days with rapidly changing clouding

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ACCESSION NR: AP4043270

conditions yielding up to a  $\pm 10$  error; 3) nighttime conditions yield somewhat better accuracies; and 4) winter conditions are characterized by marked improvements in accuracy. A table is presented in which measurement accuracies for temperature, humidity, and refraction index are referenced to season, ambient temperature, degree of clouding, and day or night conditions. A mathematical expression is given for temperature gradient (temperature change with height above the earth), and graphs are presented showing the variation of temperature, humidity, and refraction index gradient for parametric ambient temperature conditions. Further mathematical treatment relates humidity errors to temperature errors, and a nomogram is presented which yields a proportionality constant relating the two. The results of actual test measurements of errors for diverse conditions are tabulated, and correlation is made on the basis of observed data. Orig. art. has: 3 figures, 2 tables, and 3 equations.

ASSOCIATION: Kievskiy inzhenerno-stroitel'nyy institut (Kiev Engineering-Construction Institute)

SUBMITTED: 10Oct63

ENCL: 00

SUB CODE: ES

NO REF SOV: 023

OTHER: 002

Card 2/2

MOZZHUKHIN, O.A., Aspirant

Taking into consideration the results of the  
range finding. Izv. vyz. uchast. zhur. podol. 1964.  
no. 3:27-31. '64.

1. Kiyevskiy inzhener. 1964. 10. 1. 1964.

L 35590-65 RB/GW/WE-L

ACCESSION NR: AT5005140

AUTHOR: Mozzhukhin, O. A.; Prokh, L. Z.

S/3133/64/000/006/0095/0102

TITLE: Effect of air temperature and humidity stratification in the surface layer of the atmosphere on the index of radio wave refraction

18  
16  
B+1

SOURCE: An UkrSSR. Mezhdudedomstvennyy geofizicheskiy komitet. Invormatsionnyy byulleten', no. 6, 1964. Materialy Mezhdunarodnogo Geofizicheskogo Goda (Materials of the International Geophysical Year), 95-102

TOPIC TAGS: atmospheric stratification, atmospheric temperature, humidity, radio wave, refractive index

ABSTRACT: The effect of temperature and humidity on the index of radio wave refraction was studied using a new remote-controlled thermoelectric psychrometer developed at the Ukrainskiy nauchnoissledovatel'skiy gidrometeorologicheskii institut (Ukrainian hydrometeorological scientific research institute). The psychrometer was carried aloft by hydrogen balloons to an altitude of 100-150 m; temperature and humidity readings were made every 5-10 m. Measurements were made during the period 30 October-2 November 1961 in a steppe zone of the Ukraine. Values of the refractive index were computed using the formula:

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L 35590-65

ACCESSION NR: AT5005140

$$N = (n - 1) \cdot 10^6 = \frac{77.6}{T} \left( p + \frac{4744}{T} e \right).$$

where T is air temperature in degrees absolute, e is absolute air humidity in mb, p is atmospheric pressure in mb, and N is the refractive index, expressed in N-units. N-profiles were drawn to give a graphic representation of the distribution of the refractive index with height. Fig. 1 of the Enclosure is such a profile; the refractive index in N-units is plotted along the x-axis and altitude in meters along the y-axis. Comparison of such profiles reveals that the refractive index changes appreciably both with time and altitude. It is shown that periodically there are layers of anomalous distribution of the refractive index at different altitudes and that these layers change in thickness and altitude. This is illustrated in Fig. 2 of the Enclosure which covers the time period of the measurements of Fig. 1. Figures 1-2 are for a case of overcast, calm weather with a daytime fog; the variable weather conditions of this and three other days are discussed in detail and the circumstances under which microinversions occur that affect the refractive index are given. It was found that microinversions of the refractive index do not occur during stable, calm and overcast weather, after a light rain. It is hypothesized that this will hold regardless of the general type of weather when the turbulence coefficient changes monotonically with height and is sufficiently high, up to a given limit. This would provide the necessary vertical

Card 2/5

L 35590-65

ACCESSION NR: AT5005140

exchange and eliminate microinversions. Further study is necessary to verify this. 2  
Orig. art. has: 6 formulas and 8 figures.

ASSOCIATION: Kiyevskiy inzhenernostroitel'nyy institut (Kiev Civil Engineering  
Institute); Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskii institut  
(Ukrainian Hydrometeorological Scientific Research Institute)

SUBMITTED: 00

ENCL: 02

SUB CODE: ES, EC

NO REF SOV: 010

OTHER: 002

Card 3/5

L 35590-65

ACCESSION NR: AT5005140

ENCLOSURE: 01

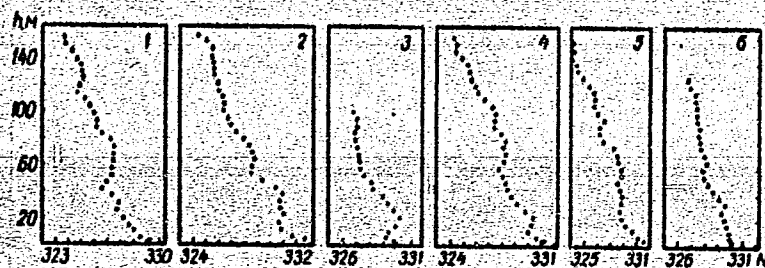


Fig. 1. N-profiles for daytime on 30 October 1961: 1) fog at 1150 hours; 2) haze, overcast, 1230 hours; 3) overcast, 1350 hours; 4) calm, overcast, 1630 hours; 5) 1744 hours; 6) 1840 hours; 7) 1025 hours.

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L 35590-65

ACCESSION NR: AT5005140

ENCLOSURE: 02

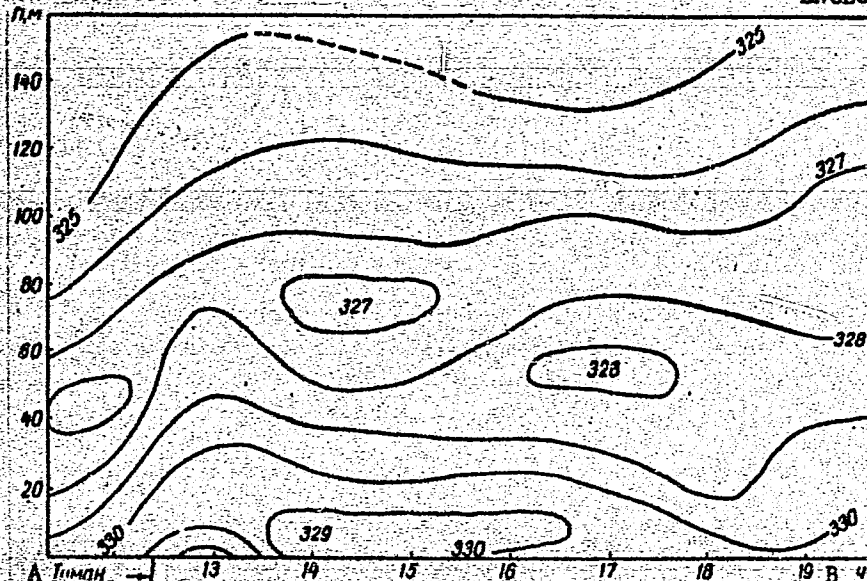


Fig. 2. Isolines of equal values of refractive index during second half of 30 October 1961. Height is plotted along the y-axis and time along the x-axis Card 5/5 (fog followed by overcast). A) fog, B) hours

L 56574-65 EWT(1)/FCC HB/GW/WS-4  
ACCESSION NR: AR5013956

UR/C169/65/000/004/B015/B015  
551.501.8

AUTHOR: Mozzhukhin, O.A.; Prokh, L.Z.

TITLE: Effect of temperature and humidity stratification in the lowest atmospheric layer on the refractive index of radiowaves

SOURCE: Ref. zh. Geofizika, Abs. 4B103

CITED SOURCE: Materialy Mezhdunar. geofiz. goda. Inform. byul., no. 6, 1964, 95-102

TOPIC TAGS: temperature stratification, humidity stratification, atmospheric temperature, humidity, refractive index, radiowave refractive index

ABSTRACT: On the basis of several series of repeated soundings of the lowest atmospheric layer, made by means of a remotely controlled thermoelectric psychrometer designed by one of the authors, the refractive index as dependent on altitude and time is given.

SUB CODE: ES

ENCL: 00

*gah*  
Card 1/1

MOZYHUKHIN, G.A.

Results of a study of the accuracy of measuring temperature with psychrometric thermometers in a shelter. Meteor. i klimat. no. 11:49-53  
N 64. (MIRA 17:12)

1. Kiyevskiy inzhenerno-stroitel'nyy institut.

L 26035-66 EWI(1)/FCC GW

ACC NR: AP6013406

SOURCE CODE: UR/0154/65/000/004/0049/0053

AUTHOR: Mozzhukhin, O. A. (Senior lecturer)

ORG: Kishinev Polytechnical Institute (Kishinevskiy politekhnicheskiy institut)

TITLE: Stratification of the index of refraction of air in the ground layer of the atmosphere

SOURCE: IVUZ. Geodeziya i aerofotos'yemka, no. 4, 1965, 49-53

TOPIC TAGS: refractive index, ~~atmospheric~~, atmospheric humidity, atmospheric temperature, planetary boundary layer, *meteorologic observation, meteorologic research facility*

ABSTRACT: The article is a report on experimental measurements of air temperature and humidity in the ground layer of the atmosphere to an altitude of 100 meters to determine the distribution of the index of refraction in air and to establish the relationships between variations in this distribution and weather conditions. These data were supplemented by meteorographic measurements made by instruments in an anchored balloon at the meteorological station of the Ukrainian Scientific Research Hydrometeorological Institute in the Dnepropetrovskaya oblast. The data were used for calculating the indices of refraction and plotting graphs with the height in meters along the vertical axis and the time along the horizontal axis. Isolines are given for the index of refraction in N-units which show the changes in refraction at various levels for the

UDC: 528 : 525. 733

Card 1/2

L 26035-66

ACC NR: AP6013406

space of one or two days in clear and overcast weather under various conditions of temperature and humidity. During the night, the index of refraction shows a laminar structure which results in considerable vertical gradients in contrast to the daytime pattern with reduced vertical gradient due to vertical mixing and relatively sharp diurnal variations in air temperature. This reduction in the vertical gradients results in more favorable meteorological conditions for precision radiogeodetic measurements. The sharpest diurnal variations in stratification of the index of refraction were observed in clear, dry, relatively warm weather at air temperatures from 5 to 15 degrees. The distribution of the index of refraction with altitude is more complex on the whole in clear weather than in cloudy weather. The distribution of the index of refraction becomes less homogeneous as the temperature increases. An extremely uniform stratification of the index of refraction is observed in the ground layer of the atmosphere during mist and snowfalls. Orig. art. has: 3 figures.

SUB CODE: 04/

SUBM DATE: 12Jan65/

ORIG REF: 007/

OTH REF: 000

Card 2/2

PB



MOZZHUKHIN, O.A.; PROKH, L.Z.

Allowing for temperature stratification, air humidity, and the accuracy of their measurement in selecting the time for radio-geodesic measurements. Geofiz. i astrof. no.8:109-113 '65. (MIRA 19:1)

1. Kiyevskiy inzhenerno-stroitel'nyy institut i Ukrainakiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut.

MOZZHUKHIN, P. V.

Acceleration of the filtration process and its effect on the quality of water. P. V. Mozzhukhin and L. N. Shustova. *Vodostokishenie i Sani* 1930, No. 1, 47-54. *Khimi. Referat. Zhur.* 1930, No. 7, 02. An increase of the velocity of filtration from 5 to 8 m/hr did not appreciably affect the physical chemical or bacteriological properties of the filtrate. The increase of the velocity of filtration lowered the total cost. W. R. H.

ASAC SLA METALLURGICAL LITERATURE CLASSIFICATION

MOZZHUKHIN, P. V.

The decolorizing of water in the Stalin water station  
P. V. Mozzhukhin and L. N. Shustova. *Vodoprovodchenie*  
*Soviet Union* 1939, No. 6, 34-41. *Khim. Referat Zhur*  
1939, No. 10, 94-5. The water of the Stalin water station  
is bacterially pure and is only slightly turbid, but humous  
substances give it a color and high O consumption. At-  
tempts were made to destroy the color of the water by frac-  
tional introduction of the coagulant, coagulation of a part  
of the water, introduction of the coagulant into the water  
in the form of a dry powder, addn of the ppt from the  
tank contg. a soln of the coagulant, charcoal,  $KMnO_4$ ,  
coagulant, clay or lime, activated coagulant and a pre-  
liminary chlorination. The best decolorizing agents are  
strong oxidizers, particularly  $Cl_2$ . The preliminary chlo-  
rination with 2.5-3 g. cu. m. of  $Cl_2$  is the most economical  
method and it permits decreasing the amt. of coagulant  
to 60 mg. l. Greater decolorization and greater saving in  
the coagulant can be effected by increasing the dose of  $Cl_2$   
to 6-8-10 g. cu. m., but with this quantity dechlorination  
is necessary. W. R. Henn

MOZZHUKHIN, Petr Vasil'yevich; SAVINA, Z.A., redaktor; POLOSINA, A.S.,  
tekhnicheskii redaktor

[Exploitation of installations and equipment in the over-contour  
flooding of oil fields (based on the practice of the Tuimazy oil  
fields)] Eksploatatsiia sooruzhenii i oborudovaniia zakonturnogo  
zavodneniia neftiannykh plastov (na opyte Tuimazinskogo neftiannogo  
mestorozhdeniia). Moskva, Gos. nauchno-tekhn. izd-vo neftianoi i  
gorno-toplivnoi lit-ry, 1955. 165 p. (MLRA 8:6)  
(Tuimazy region--Oil field flooding)

MOZZHUKHIN, Ye.; FEDORENKO, V.

A simple tube-type radio receiver. Radio no. 11:44-47  
N '62.

(Radio--Receivers and reception) (MIRA 15:12)

Mozyukhin, F.I.

<sup>8</sup>  
Oxidation of alloys containing the compound  $\text{NiAl}$ .  
F. I. Mozyukhin, L. Kh. Pivovarov, and Ya. S. Umanski  
(Zhur. Priklad. Khim. 30, 1883, 1967). The heat resistance of Ni-Al alloys was studied  
and for comparison, that of Ni (99.95%) and CoAl was  
studied. Alloy 1, contg. Ni 64.44 and Al 34.40 wt. %, was  
similar to alloy 4, contg. Co 63.69 and Al 33.84%. Alloys  
2 and 3 contained Ni 73.47 and 81 and Al 25.86 and 19.00%,  
resp. Alloy 3 prepd. by powd. metallurgy was of different  
porosities (2.7-31.2%). The other alloys were cast. The  
heat resistance evaluated by the gain in wt.  $G$ , mg./sq.  
cm., of the Ni-Al alloys was higher at 1100° than that of  
Ni at 1000° (except of alloy 3 with a porosity less than 3%).  
Alloy 1 was more resistant than alloy 4. The  $G$  vs.  $t$  ( $t$  =  
time, min.) curves of alloy 3 and of Ni at 1100° exhibited  
breaks. This was attributed to cracks in the film caused by  
internal stresses. The  $G$  vs.  $t$  curves on log coordinates  
were linear functions expressed by  $G^2 = Kt$ . The values  
of  $K$  of powd. alloy 2, alloy 4, and alloy 3 with porosities  
from 10.7 to 31.2% were 1.0-1.2, 1.7, and 1.8-1.8, resp.  
This indicated that oxidation occurred at the boundary be-  
tween the metal and the film and that the latter was not con-  
trolling. The values of  $K$  of alloy 1 (cast and powd.),  
powd. alloy 2, and of Ni were 2.2-2.3, 2.9, and 2.0, resp.  
The x-ray analyses of the films formed at 1200° during 10  
hrs. showed the presence of  $\text{NiAl}$  and  $\text{NiO} \cdot \text{Al}_2\text{O}_3$  in alloy 1;  
 $\text{NiAl}$ ,  $\text{NiO} \cdot \text{Al}_2\text{O}_3$ , and  $\alpha\text{-Al}_2\text{O}_3$  in alloy 2; and  $\text{Ni}_3\text{Al}$  and  
 $\text{NiO} \cdot \text{Al}_2\text{O}_3$  in alloy 3. Apparently an excess of Al formed a  
dense film, whereas in the presence of an excess of Ni the  
film was weakened by the formation of  $\text{Ni}_3\text{Al}$ . The compd.  
CoAl was oxidized more than the compd.  $\text{NiAl}$ . I. II.

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82

AUTHOR: Mozzhukhin, E.I.

136-4-17/23

TITLE: Use of "protective vacuum" for sintering metal powders.  
(Primenenie "zashchitnogo vakuuma" dlya spekaniya  
metallicheskikh poroshkov).

PERIODICAL: "Tsvetnye Metally" (Non-ferrous Metals) 1957, No. 4,  
pp. 76-77 (U.S.S.R.)

ABSTRACT: Oxidizable metal powders must be prevented from oxidation during sintering. It is difficult to achieve this object by maintaining a high vacuum in the furnace since it is difficult to make such installations completely gas-tight. The author points out that by surrounding the furnace with an inert gas the harmful effects of small leaks into the furnace can be avoided. This is known as "protective vacuum" and it has been used at the Moscow Steel Institute (Moskovskiy Institut Stali) where the furnace was totally enclosed in a rubber envelope. Hydrogen was used in the envelope when a Ni - Al alloy with a high Al content was being sintered. The product contained 0.15 - 0.20%  $Al_2O_3$ , compared with 0.44 - 0.50%  $Al_2O_3$  without the protective hydrogen-containing envelope and 0.31%  $Al_2O_3$  for powders sintered in the presence of titanium powder. There is 1 Slavic reference.

Card 1/1

AVAILABLE:

SOV/163-58-1-11/53

AUTHORS: Gimmel'farb, A. I., Yelyutina, V. I., Mozzhukhin, Ye. I.

TITLE: Some Data on the Pseudo-Binary Phase Diagrams of NiAl and TiC  
(Nekotoryye dannyye k psevdobinarnoy diagramme sostoyaniya NiAl-TiC)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1958, Nr 1, pp 222-225 (USSR)

ABSTRACT: In special investigations the initial and end temperatures of the melt of alloys containing up to 50% TiC were determined. The alloys of NiAl and TiC were produced by the method of powder metallurgy. The results obtained made it possible to represent liquidus and solidus lines in NiAl and TiC. The radiographic analyses of the samples showed that all alloys investigated consisted of two phases. No solubility of TiC in NiAl was found. The metallographical analyses proved the presence of the bi-phase NiAl and TiC in these alloys. To produce the liquid phase in the alloys NiAl and TiC at the sintering temperature the sintering has to be carried out at a higher temperature.

Card 1/2



Some Data on the Pseudo-Binary Phase Diagrams of NiAl and TiC SOV/163-58-1-41/53

To produce alloys of the system TiC and NiAl of greater strength and density a sintering temperature higher than 2000°C is necessary.

The eutectic temperature of the system TiC-NiAl was determined (1580°C).

There are 2 figures, 1 table, and 4 references, 1 of which is Soviet.

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute)

SUBMITTED: October 1, 1957

Card 2/2

GORELIK, S.S.; MOZZHUKHIN, Ye.I.; MAYYER, Z.

Investigating relaxation and recrystallization in high-melting  
point titanium and tungsten carbides. Izv. vys. ucheb. zav.;  
tsvet. met. no.2:153-160 '58. (MIRA 11:8)

1. Moskovskiy institut stali. Kafedra fiziki metallov i rentgeno-  
grafii.  
(Carbides) (Tungsten—Metallography) (Titanium—Metallography)

AUTHORS: Mozzhukhin, Ye.I., Shulepov, V.I.

32-3-35/52

TITLE: The Application of Coal- and Graphite Heating Elements in the TVV-2 Furnace (Primeneniye ugol'nykh i grafitovykh nagrevateley v pechi TVV-2)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 3, pp. 359-360 (USSR)

ABSTRACT: In the laboratory for powder metallurgy of the institute mentioned below the tungsten heating elements of the TVV-2 type furnace were exchanged. This exchange can be repeated and takes 20-25 minutes. When using carbon tubes with an outside diameter of 70 mm and an inner diameter of 60 mm work could be carried out only up to a temperature of 1200° C; for higher temperatures graphite heating elements of a special shape were developed. The furnace was used for work carried out in an inert gas atmosphere, in which case, however, various alterations had to be carried out. For work carried out in a gas-atmosphere the tungsten heating elements gave satisfaction and so did graphite heating elements. It is not advisable to work in an atmosphere of dissociated ammonia, because the small quantity of undissociated portion may cause considerable

Card 1/2

The Application of Coal- and Graphite Heating  
Elements in the TVV-2 Furnace

32-3-39/52

corrosion in the copper body of the furnace. There is 1 figure.

ASSOCIATION: Moscow Steel Institute imeni I.V. Stalin (Moskovskiy institut  
stali im. I.V.Stalina)

AVAILABLE: Library of Congress

1. Laboratory furnaces-Modifications
2. Heating elements-Test methods
3. Heating elements-Test results

Card 2/2

SOV/i37-59-1-575

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 75 (USSR)

AUTHORS: Yelyutin, V. P., Mozzhukhin, Ye. I., Shulepov, V. I.

TITLE: Effect of Combined Chemical and Heat Treatment on Heat Resistance of Alloys (Vliyaniye khimiko-termicheskoy obrabotki na zharoupornost' splavov)

PERIODICAL: Sb. Mosk. in-t stali, 1958, Nr 38, pp 427-432

ABSTRACT: The authors investigated the effect of combined chemical and heat treatment (CHT) of the surface of specimens of a TiC base (71.5% TiC) alloy cemented with a NiAl compound containing 54 atom-% Ni and 60 atom-% of metallic Nb, Zr, Cr, or Be on the resistance to scale formation at 1150 - 1250°C. The CHT consisted of annealing of the specimens covered with a 50:50 mixture of ZrO<sub>2</sub> and alloying metal and 1% NH<sub>4</sub>Cl in an H<sub>2</sub> atmosphere at 1500°. Saturation of the surface with niobium and zirconium does not improve the resistance to scale formation of TiC - NiAl alloys. CHT with beryllium and chromium increases the heat resistance by 1900% and 200%, respectively. The authors note that a change in the procedure of saturation of the alloy surface with chromium (for example at 1150° temperature

Card 1/2

Effect of Combined Chemical and Heat Treatment on Heat Resistance of Alloys SOV/137-59-1-575

in an atmosphere of air) has no effect on its resistance to scale formation. However, CHT conditions should remain constant (1500° temperature for 0.5 hour) for Be, because any difference in the interaction between Be and TiC and NiAl results in a different concentration of Be in these phases. The authors submit that during longer CHT Be reacts predominantly with the NiAl and that the TiC grains become exposed, which lowers the resistance to scale formation of these alloys.

R. A.

Card 2/2

MOZZHUKHIN, Ye. I.

AYZENKOL'B, F. [Eisenkolb, Friedrich], prof., Dr. Ing. habil.;  
MAURAKH, M.A., kand.tekhn.nauk, prepodavatel' [translator];  
MOZZHUKHIN, Ye.I., kand.tekhn.nauk, prepodavatel' [translator];  
NATANSON, A.K., kand.tekhn.nauk, prepodavatel' [translator];  
LEVIN, B.Ye., kand.tekhn.nauk [translator]; YELYUTIN, V.P.,  
prof., doktor, nauchnyy red.; RZHEZNIKOV, V.S., red.; EL'KIND,  
L.M., red.izd-va; ATTOPOVICH, M.K., tekhn.red.

[Powder metallurgy] Poroshkovaia metallurgiya. Pod nauchnoi  
red.V.P.Eliutina i A.K.Natansona. Moskva, Gos.nauchno-tekhn.  
izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1959. 518 p.  
Translated from the German. (MIRA 13:1)

1. Kafedra metallurgii redkikh metallov i poroshkovoy metallur-  
gii Moskovskogo instituta stali (for Maurakh, Mozzhukhin, Natan-  
son).

(Powder metallurgy)

18.6200

S/148/60/000/002/007/008

AUTHORS: Mozzhukhin, Ye.I., Yelyutin, V.P., Umanskiy, Ya.S

TITLE: The Effect of Sintering Conditions on the Strength of Carbide Base Alloys Carburized by a NiAl Compound

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, 1960, Nr 2, pp 142 - 147

TEXT: To determine optimum sintering conditions ensuring the preparation of high-strength alloys, the authors studied the effect of various sintering conditions on the properties of Ti-carbide and Ti-W-carbide base alloys carburized by a Ni-Al compound. The effect of sintering conditions on the strength of alloys during bending tests at room and elevated temperatures was mainly studied. Students of the Moskovskiy institut stale (Moscow Steel Institute), Ye.A. Bychkova, L.V. Maksimova and Ye.I. Oginskaya took an active part in the studies. The carburizing alloys contained 54 - 60% (at) Ni. The given theoretical compositions of the investigated alloys are contained in Table 1. The specific weight of Ti-W-carbides was calculated from the weight and volume of the carbide component in hard alloys. It was  $11.4 \text{ g/cm}^3$

Card 1/4



S/148/60/000/002/007/008

The Effect of Sintering Conditions on the Strength of Carbide Base Alloys  
Carburized by a NiAl Compound

for Ti5 carbide,  $6.16 \text{ g/cm}^3$  for Ti60 carbide. The alloys were prepared of Ti-carbide powder and complex Ti-W-carbides. Powders of the initial material were mixed in alcohol for 48 hours, dried in air, pressed into briquets and dried in a vacuum cabinet. Sintering was carried out in argon and hydrogen atmosphere, in a laboratory vacuum furnace with a graphite shaft and in a TVV-2 furnace. Optimum sintering conditions were determined from the results of measuring the strength, hardness, specific weight, and changes in the composition of the alloys. Greatest changes in the composition were observed in sintering Ti-carbide-base alloys in a vacuum. Loss of individual components through sintering was calculated after sintering in a vacuum, hydrogen and argon for 1 hour at  $1,700^\circ\text{C}$ . The loss amounted to 15% Ti, 67% Al and 13% C of the total amount of the component in the alloy prior to sintering. Minimum loss was observed in sintering in pure argon. Table 2 contains the composition of the Ti60B (15) alloy prior to and after sintering under different conditions. The strength of alloys during bending was investigated with the aid of a special device on a two-ton testing machine at high temperatures.

Card 2/4

S/148/60/000/002/007/008

The Effect of Sintering Conditions on the Strength of Carbide Base Alloys  
Carburized by a NiAl Compound

without shielding atmosphere. Figures 1 - 5 show the effect of the sintering temperature on the alloy strength during bending. Highest strength of Ti-carbide base alloys was obtained by sintering for 1 hour at 1,900°C. A raise of the sintering temperature up to 2,100°C did not affect the strength (Figure 1), although shrinkage and density of the alloys increased. Extended holding up to four hours entailed decrease in strength; holding time reduced down to 0.5 hrs entailed a decrease in density. The authors contradict the statement made in [Ref 4] that the optimum temperature of sintering for a TiC-NiAl alloy was 1,650°C. They proved experimentally that alloys of highest strength and density were obtained at 1,900°C and above. It was established that optimum mechanical properties of the alloys depended on the optimum amount of the liquid phase during sintering. To obtain this, alloys with a lesser content of binder should be sintered at higher temperatures which raise the amount of the liquid phase due to the dissolving of the carbide component.

Card 3/4

3/148/60/000/002/007/008

The Effect of Sintering Conditions on the Strength of Carbide Base Alloys  
Carburized by a NiAl Compound

There are: 2 tables, 5 graphs and 7 references, 6 of which are English and  
1 Soviet.

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute)

SUBMITTED: May 25, 1959

Card 4/4

85822  
S/140/61/000/003/011-018  
A161/AG29

18 6100

1497

AUTHORS:

Mozzhukhin, Ye. I. <sup>1</sup> Levutskiy, V. I. <sup>1</sup> Smanskiy, Ya. B.

TITLE:

Strength of Carbide Alloys Cemented by NiAl and CoAl Compounds

PERIODICAL:

Izvestiya vysshikh i nizhnikh zavedeniy - Chernaya metallurgiya  
1960. No. 3. pp. 131-135

TEXT:

An investigation was carried out with titanium and titanium-tungsten carbide powder bound with NiAl and CoAl compounds. The effect of the composition and of different quantities of the binders was determined. The results are illustrated by curves. In case of titanium carbide with 15 volume % NiAl the binder composition had no effect on the alloy strength at room temperature but a pronounced effect was observed at 1,000°C. Alloys bound with binders of stoichiometric composition proved strongest, and alloys bound with NiAl with 60 atomic % Ni weakest. Alloys with over 25 volume % NiAl have the maximum strength. The strength of TiC-NiAl at 1,000°C was in all cases higher than at room temperature, which not fully corresponds to statements made in a previous investigation (Ref.3). The alloy with high NiAl content had a considerably higher heat resistance than with low NiAl content. Titanium-tungsten carbide T-15 (T-15) and T-60 (T-60) were bound with CoAl with 60 atomic % Co, with 10 and 15 volume % CoAl, respectively.

Card 1/2

Strength of Carbide Alloys Cemented by NiAl and CoAl Com - pounds

85811

S/148/60/000/003/015/C18  
A161/A029

A higher strength was observed in alloys with 15 and 20 volume % of NiAl at 900°C than in cold which is explained by higher plasticity of NiAl at 900°C. At higher temperature the alloy strength dropped. The high strength of TiC-NiAl alloys in hot state is apparently also due to the plasticity of NiAl and stress redistribution. This phenomenon had been observed by G.S. Kreymer, O.S. Safonova and A.I. Baranov (Ref. 4) in WC-Co alloys (maximum strength at 200°C due to softened cobalt). The following conclusions were drawn: 1) Titanium carbide alloys bound with NiAl have higher bending strength at 1,000°C than at room temperature. 2) Titanium-tungsten carbide alloys with 16% titanium carbide bound with NiAl retain their strength up to 900-1,000°C. 3) Titanium-tungsten carbide bound with CoAl has a higher strength than analogous alloys bound with NiAl. 4) At room temperature the strength of titanium carbide alloys does not depend on the composition of NiAl, but at 1,000°C it does. At 1,000°C alloys bound with NiAl of stoichiometric composition have maximum strength. 5) The carbide base composition is important for alloys bound with NiAl and CoAl. Alloys with pure titanium carbide and titanium-tungsten alloys with high titanium content (64% TiC) have low strength at room temperature, but they retain their strength or even increase it at 1,000-1,100°C. There are 4 figures and 5 references: 3 Soviet, 2 English.

Card 2/2

85459

S, 145/60/000/005/011/015  
A006, A001

15-2200

2808, 1142, 1411, 1439

AUTHORS:

Gorelik, S.S., Mozzhukhin, Ye. I., Yelyutina, V.I.

TITLE

Radiographic Investigation of Recrystallization Processes and Release of a Carbide Phase of Hard Alloys Containing Tungsten, Titanium and Tantalum Carbides

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Tsvetnaya metallurgiya, 1960, No. 5, pp. 121-125

TEXT:

The authors used the X-ray method to investigate recrystallization processes and release of a carbide phase in hard alloys containing tungsten, titanium and tantalum carbides, and in solid solutions in tungsten and tantalum carbide base. The compositions of carbide components of the alloys investigated are plotted on a WC-TiC-TaC diagram (Figure 1). The alloys investigated were obtained from the following initial materials: tungsten carbide obtained by tungsten carburization, reduced with hydrogen at 1,350-1,400°C; titanium carbide obtained from a TiO<sub>2</sub> and carbon black mixture by roasting at 2,200°C in hydrogen atmosphere; tantalum carbide obtained by carburization of tantalum metal at 1,600°C. The alloys were carburized with cobalt powder reduced by hydrogen from Co<sub>2</sub>O<sub>3</sub>. The

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85459

S/149,60,000/005 011,015  
AOC6/A001

Radiographic Investigation of Recrystallization Processes and Release of a Carbide Phase of Hard Alloys Containing Tungsten, Titanium and Tantalum Carbides

Carbide and metal powders were mixed in a ball mill and screened. Specimens of 5 x 5 x 40 mm were pressed and sintered in a tubular furnace with a graphite heater in hydrogen atmosphere at 1,600°C. The specimens were then reformed by stripping on an abrasive disk and annealed in argon atmosphere. After annealing the specimens were rolled and radiographs were taken using chrome amide irradiation. Annealing was repeated until the appearance of interference spots indicated the formation of 1-2  $\mu$  grains of carbides. The temperature of the last annealing stage was considered as recrystallization temperature. Temperatures of initial recrystallization ( $\sim 10\%$ ) and of intensive recrystallization (1% for carbide components) of 9 alloys investigated were determined as follows:

Alloy	1	2	3	4	5	6	7	8	9
1250	1350	1350	1500	1350	1350	1400	1450	1500	
1300	1400	1400	1350	1400	1400	1450	1500	1550	

Card 2/6

85459

S 149,60,000/005 011-015  
AOC6/AOC1

Radiographic Investigation of Recrystallization Processes and Release of a Carbide Phase of Hard Alloys Containing Tungsten, Titanium and Tantalum Carbides

To check the assumption that a decomposition of oversaturated solid carbide solutions during annealing takes place, lattice parameters were determined for the solid solution of TiC-TaC-WC carbides of alloy No. 8 after one hour sintering of the specimens at 1,600°C and one-hour annealing at 1,100, 1,200, 1,300 and 1,450°C. Radiographs were taken with a Kries camera using chrome anode irradiation. The authors investigated moreover release phenomena occurring when annealing alloys 3, 7 and 8. The changes in the width of lines (222) of the radiograms obtained with chrome anode irradiation, were studied. The experiments yielded the following results: From the three mostly used WC, TiC and TaC carbides tungsten carbide has the lowest (1,250°C), tantalum carbide the highest (1,500°C) and titanium carbide an intermediate temperature of recrystallization (1,440°C). When dissolving WC in a solid TiC-TaC solution, in TaC and TiC the temperature of initial recrystallization of the solution decreases until a concentration is attained corresponding to saturation. In the bi-phase range the recrystallization temperature of carbide solid solutions does not change with varying compositions of the carbide component of the alloy and of the quantitative phase ratio. At an equal

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85459

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A006/A001

Radiographic Investigation of Recrystallization Processes and Release of a Carbide Phase of Hard Alloys Containing Tungsten-Titanium and Tantalum Carbides

content of WC in the carbide solid solution. Oversaturated solid solutions have highest recrystallization temperatures. The decomposition of the carbide solid solutions raises the recrystallization temperature on account of the inhibited growth of recrystallization nuclei by particles of the dispersed phase. The magnitudes of substructure domains in deformed surfaces are very close for various compositions of solid solutions of TiC-TaC-WC and for the solid solution of WC in TiC. The decomposition of the solid solution TiC-TaC-WC exerts an inhibiting effect on the growth of substructural domains during release.

Card 4/6

85457

S 149/60 000,005,009 013  
A006/A001

## Investigation Into Conditions of Titanium-Ni Carbide Chlorination

The operating chamber of the furnace represents a vertical graphite cylindrical tube with an expanding top pressed into a specially housing with external heat insulation. A graphite grid is mounted in the chamber bottom. Carbide feed is performed with the aid of a screw feeder. Chlorination process can be conducted at levels of 280 to 420 mm due to the arrangement of discharge pipes at different heights. The furnace is heated with a digitate quartz heater having two heating zones. Chlorides are collected with the use of a condensation system developed by Giredmet. During the chlorination process the graphite accumulates in the bed, concentrates on its surface and is partially eliminated by the gas flow. To bind the carbon and eliminate it in a gaseous state preliminary tests of carbide chlorination were made with a chlorine-oxygen mixture, to form CO or CO<sub>2</sub>. The rate of chlorine feed was 2.8 cm/sec for carbide of  $-100\mu$ -89%. After the onset of reaction at 200°C, the temperature in the bed raised spontaneously and the lower heater was automatically switched off. The top heater was switched off at 450°C. When operating with a chlorine-oxygen mixture the latter was supplied to the furnace at 600°C. At the beginning of the experimental investigation carbide was supplied to the furnace periodically through a funnel and later on continuously by the screw feeder. Preheated carbide of the following composition was used

Carb 5.6

85457

S/149/60/000/005/009/015

A006/A001

Investigation Into Conditions of Titanium-Nickel Carbide Chlorination

52.40% Ti, 8.85% Ni, 4.67% Si, 0.24% P, 0.07% Ca, 12.17% C<sub>bound</sub>, 11.10% C<sub>free</sub>, 2.90% N, 7.60% O, etc. The experiment proved the possibility of continuous powder carbide chlorination in a fluidized bed with chlorine or a chlorine-oxygen mixture. The main advantage of the latter method is the elimination of Ti in the form of CO or CO<sub>2</sub>. The process can be conducted in a fluidized bed on account of the reaction heat without an external heat supply even in a small-scale furnace (0.0177 m<sup>2</sup> floor surface). Fluidized-bed chlorination is characterized by a high output (300 kg/hr per m<sup>2</sup> of furnace floor), a high degree of utilization of raw materials (98.99%), and a fairly high purity of the products obtained. These values exceed considerably the efficiency of direct chlorination of the concentrates in the form of briquets mixed with coal. There are 2 tables, 7 figures and 5 references. 4 Soviet and 1 English.

ASSOCIATION: Krasnoyarskiy institut tsveynykh metallov (Krasnoyarsk Institute of Non-Ferrous Metals) Kafedra metallurgii redkikh metallov (Department of Metallurgy of Rare Metals)

SUBMITTED: December 10, 1959

Card 6/6

15.2200, 5.2100

70206  
SCV/80-33-3-3/47

AUTHORS: Yelutin, V. P., Kitaygorodskiy, I. I., Mozhukhin, Ye. I., Rabkin, V. B.

TITLE: Investigation of a Composition of Mikrolit and Metallic Compound NiAl

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 3, pp 559-563 (USSR)

ABSTRACT: Mikrolit (Soviet synthetic corundum of ultra-microscopic structure which consists of the following: pure aluminum oxide; hardness according to Rockwell, Scale A, 92-93; bending strength 45 kg/mm<sup>2</sup>; resistance to fire, 1,900° C; low resistance against temperature changes) and an NiAl compound (mp 1640° C; 71.5% Ni, 28.4% Al; admixtures: 0.33% Fe, 0.03% Si, 0.02% C, 0.005% P) were ground together in a ball mill to a very fine powder, compressed into briquettes under 500 kg/cm<sup>2</sup> pressure, and sintered for 10 min in type TVV-2 oven at 1,700° C

Card 1/8

Investigation of a Composition of Mikrolit  
and Metallic Compound NiAl

78208

SOV/80-33-3-9/47

in various media (hydrogen, argon, vacuum). Technical argon contained 11% N, 0.4% O<sub>2</sub>, 0.2% CO<sub>2</sub>, while pure argon contained 0.3% N, 0.05% O<sub>2</sub>. The properties of the compositions thus obtained are shown in Figs. 2-5. Drops of molten metal formed on the surface of samples containing 30% by volume of NiAl which were sintered in hydrogen and in pure argon. Microscopic analysis showed that the metallic component of the composition is distributed evenly throughout the mikrolit in the form of separate particles measuring 20-25  $\mu$ , i.e., 5-10 times as large as the starting NiAl particles after grinding. This is due to the coagulation of the molten particles during sintering. There are 5 figures; and 2 U.S. references. The 2 U.S. references are: A. E. S. White, F. K. Earp, T. H. Blakeley, G. Walker, Symposium on Powder Metallurgy, 311-314 (1954); McBride, H. D. Greenhouse, T. S. Shevlin, J. Am. Cer. Soc., 35, 1, 28 (1952).

Card 2/8

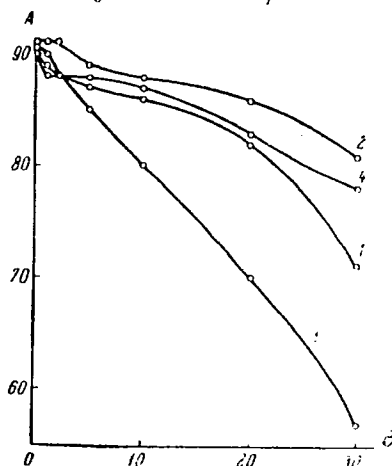
Investigation of a Composition of Mikropolit  
and Metallic Compound NiAl

76208

SOV/86-35-3-1/47

ASSOCIATION: Moscow Steel Institute and Moscow Chemical Technological  
Institute (Moskovskiy Institut stali i Moskovskiy  
khimiko-tekhnologicheskij Institut)

SUBMITTED: December 1, 1959



Card 3/8

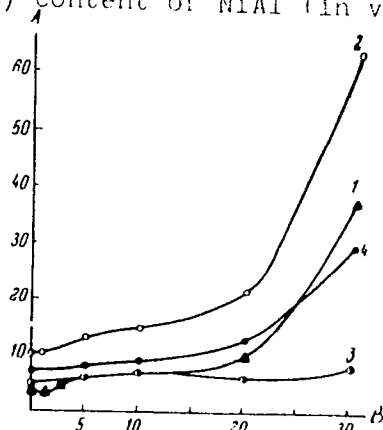
Fig. 2. (See caption on Card 4/8 )

Investigation of a Composition of Mikrolit  
and Metallic Compound NiAl

75210

SOV/86-13-3-4, 47

Fig. 2. Relation between hardness of the composition, mikrolit - NiAl compound and content of NiAl after sintering (1) under vacuum; (2) in hydrogen; (3) in technical argon; (4) in pure argon. (A) hardness  $R_A$ . (B) content of NiAl (in volume, %).



Card 4/8

Fig. 3. (Caption on Card 5/8 )

Investigation of a Composition of Mikrolit  
and Metallic Compound NiAl

762500

SCV/34-35-3-1/47

Fig. 3. Resistance of the composition mikrolit -  
compound NiAl vs. temperature changes after sintering  
under various conditions at 1,700° C for 10 min.  
Conditions: heating to 1,000° C, cooling in water.  
Curve designation, as in Fig. 2. (A) number of  
temperature changes until disintegration; (B) NiAl  
content (in volume, %).

Card 5/8



Investigation of a Composition of Mikrolit  
and Metallic Compound NiAl

78208

SOV/80-33-3-1/47

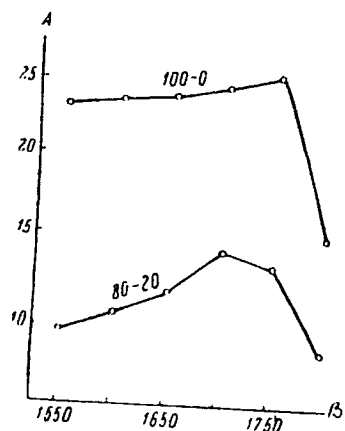


Fig. 4. Relation between the bending strength of pure mikrolit and of composition 80-20, and the sintering temperature. Sintering made in hydrogen, time of holding at sintering temperature, 30 min. (A) bending strength,  $\sigma_b$  at 20° C (in kg/mm²); (B) sintering temperature (in °C).

Card 6/8

Investigation of a Composition of Mikrolite  
and Metallic Compound NiAl

78203

30V/86-33-3-2/47

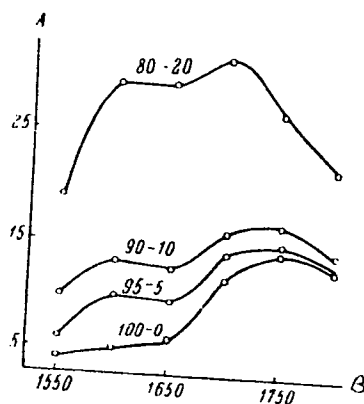


Fig. 5.

Card 7/8

Caption on Card 8/8.

Investigation of a Composition of Mikrolit  
and Metallic Compound NiAl

78208

SOV/80-33-3-1/47

Fig. 5. Relation between resistance against temperature changes and sintering temperature of the composition mikrolit - compound NiAl. Sintering made in hydrogen for 30 min. Conditions: heating to 1,200° C, cooling in water. (A) Number of temperature changes until disintegration; (B) sintering temperature (in ° C). The contents of mikrolit and NiAl in the composition are indicated by pairs of hyphenated numbers; the first number gives the content of mikrolit, the second, the content of NiAl (in volume, %).

Card 8/8

89663

18 1210

S/149/61/000/002/012/017  
A006/A001

**AUTHORS:** Astrakhantsev, S.M., Mozzhukhin, Ye.I., Umanskiy, Ya.S.  
**TITLE:** Investigation of Sintered Alloys on Metallic NiAl Compound Base  
**PERIODICAL:** Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, 1961, No. 2, pp. 110 - 115

**TEXT:** The authors developed a technology for obtaining Ni-Al alloys by powder metallurgy methods, and investigated the properties of the alloys obtained. Alloys of the single-phase NiAl and the bi-phase NiAl-Ni<sub>3</sub>Al range were studied. The technology employed was different from previous methods (Ref. 5, 6) where the alloys had been prepared from powders whose composition corresponded to that of the alloys. In the present investigation the alloys were produced from Ni-Al addition alloys and nickel powder, whereby the Al content in the addition alloy exceeded that in the alloy. The addition alloys were melted in high-frequency induction furnaces in a magnesite crucible. The experiments were made with four single-phase alloys containing Al (in atomic %): 1) - 52.5; 2) - 50; 3) - 45; 4) - 40. Alloy 1 was a solid solution of Al subtraction in NiAl; alloy 2 corresponded to the NiAl compound of stoichiometric composition; alloys 3 and 4 were solid solutions

Card 1/5

89663

S/149/61/000/002/012/017  
A006/A001

## Investigation of Sintered Alloys on Metallic NiAl Compound Base

of Ni in NiAl (alloy 4 is close to the boundary of Ni solubility in Ni<sub>3</sub>Al). Alloys of the bi-phase NiAl-Ni<sub>3</sub>Al range were also studied, containing Al (weight %): 5) - 20; 6) - 19.5; and 7) - 17.5. The addition alloy and nickel powder were mixed in alcohol for 72 hours and pressed under 3 t/cm<sup>2</sup> pressure. Sintering was performed in a TBB-2 (TVV-2) vacuum furnace mainly in a "hydrogen" vacuum which was maintained at  $\approx 4 - 5 \cdot 10^{-3}$  mm Hg during the rise of temperature and the sintering temperature. To produce specimens of minimum porosity sintering was carried out at maximum temperatures which were experimentally determined for each alloy (1,490 - 1,500°C for alloy 1; 1,510 - 1,520°C for alloy 2; 1,490 - 1,500°C for alloy 3; and 1,430 - 1,440°C for alloy 4). Relative densities of pressed briquets and sintered specimens are given in Table 1. The sintered alloys were subjected to bending and break and tested as to their microhardness and endurance strength. Results are given in Figures 2, 3, 4. It was found that the bending strength of single-phase NiAl alloys at room temperature increased with a higher nickel content in the NiAl compound; maximum strength is offered by an alloy which is on the boundary of the single-phase NiAl and the bi-phase NiAl+Ni<sub>3</sub>Al range. At high temperatures, the poorest strength characteristics are shown by alloys being near the boundary of the single-phase NiAl range, from the nickel and the aluminum side as well.

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**Table 1:** Relative densities of pressed and sintered specimens, volumetric and linear shrinkage for single-phase alloys

After pressing				After sintering				
Alloy	Specific weight of briquets g/cm <sup>3</sup>	Spec. weight of compact charge material g/cm <sup>3</sup>	Relative density of briquets %	Spec. weight of specimens g/cm <sup>3</sup>	Spec. weight of compact alloy material g/cm <sup>3</sup>	Relative density %	Volumetric shrinkage %	Linear shrinkage %
1	3,75	5,15	72,8	5,2	5,65	92,5	30	10,5
2	4,05	5,20	78,0	5,5	5,93	93,0	28	8,5
3	4,18	5,55	75,5	5,9	6,20	95,0	30	9,5
4	4,25	5,80	73,0	6,4	6,50	98,5	35	9,0

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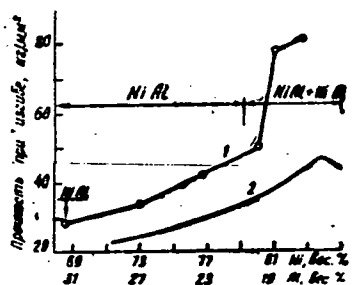
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8/149/61/000/002/012/017  
A006/A001

# Investigation of Sintered Alloys on Metallic NiAl Compound Base

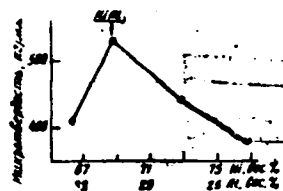
**Figure 2:**

Dependence of strength during bending (for 20°C) from the composition of sintered alloys obtained in the present investigation (1) and in the study described in Ref. 5 (2)



**Figure 3:**

Microhardness of sintered single-phase NiAl alloys



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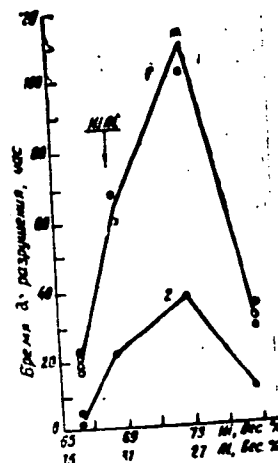
S/149/61/000/002/012/017  
A006/A001

# Investigation of Sintered Alloys on Metallic NiAl Compound Base

## Figure 4:

Strength of NiAl alloys during stretching (5 kg/mm<sup>2</sup> load) for 800°C (1) and 850°C (2).

There are 2 tables, 4 figures and 12 references: 4 Soviet and 8 non-Soviet.



ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute). Kafedra rentgenografii (Department of Roentgenography)

SUBMITTED: April 29, 1960

Card 5/5



LYSOV, B.S., kand.tekhn.nauk [translator]; MOZZHUKHIN, Ye.I., kand.  
tekhn.nauk [translator]; SHULEPOV, V.I., kand.tekhn.nauk  
[translator]; IVANOV, A.F. [translator]; SIROTINA, Ye.P.  
[translator]; NATANSON, A.K., kand.tekhn.nauk, red.;  
ALEKSEYEV, V.A., red.; DZHATIYEVA, F.Kh., tekhn.red.

[Molybdenum] Molibden; sbornik statei. Moskva, Izd-vo  
inostr.lit-ry, 1962. 393 p. Translated from the English.  
(MIRA 15:5)

1. Kafedra metallurgii redkikh metallov Moskovskogo instituta  
stali (for Lysov, Mozzhukhin, Shulepov).  
(Molybdenum)

GORELIK, S.S.; YELYUTIN, V.P.; MOZZHUKHIN, Ye.I.; URAZALIYEV, U.S.; FUNKE, V.F.

X-ray investigation of recrystallization processes of titanium, zirconium, and molybdenum borides, and titanium and tungsten carbides. Izv. vys. ucheb. zav.; tsvet. met. 5 no.4:143-148 (MIRA 16:5)  
'62.

1. Moskovskiy institut stali, kafedry redkikh metallov, fiziki metallov i rentgenografii.  
(Borides) (Carbides) (Crystallization)

S/126/62/014/003/014/022  
E193/E383

AUTHORS: Yelyutin, V.P., Mozzhukhin, Ye.I., Panov, A.V. and Khalil, R.B.

TITLE: Study of internal friction of copper on specimens prepared by powder-metallurgy techniques

PERIODICAL: Fizika metallov i metallovedeniye, v. 14, no. 3, 1962, 443 - 451

TEXT: The object of the present investigation was to study the effect of various factors (compacting pressure, sintering conditions) on the internal friction of green and sintered copper-powder specimens. The test pieces (70 x 5 x 0.5 - 1.5 mm) were prepared from electrolytic copper powder (20 - 30  $\mu$  particle size), 99.915% purity, which had been given a preliminary reducing anneal (2 hours at 400 °C) in hydrogen. The internal friction was determined by measuring the amplitude of forced oscillations of the specimen near its resonance frequency on an apparatus designed by one of the present authors (a description is given of both the equipment and experimental procedure). Typical results are reproduced Card 1/13

S/126/62/014/003/014/022  
E193/E383

# Study of internal friction ....

in Figs. 3 and 5. In Fig. 3, the internal friction ( $\tan \delta \times 10^4$ ), is of green compacts, prepared under a pressure of 4 t/cm<sup>2</sup>, is plotted against temperature (°C), curve 1 representing the results obtained on heating a freshly prepared compact, curve 2 showing the results obtained on subsequent cooling. Fig. 5 shows the temperature dependence of  $\tan \delta \times 10^4$  of compacts sintered at 900 °C in a vacuum (curve 1) and hydrogen (curve 2). Several conclusions were reached: 1) Temperature-dependence of internal friction of green copper-powder compacts have two peaks: a low-temperature peak associated with the grain-boundary effect and a high-temperature peak associated with the presence of oxygen; the internal friction of green compacts decreases with increasing compacting pressure. 2) The internal friction of green compacts, measured during the first heating cycle, is lower than that observed during subsequent cooling; this can be attributed to sintering taking place during the first heating cycle and during the first internal-friction measurements. 3) The high-temperature peak disappears if sintering is carried out in hydrogen at 900 - 1 000 °C.

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Study of internal friction ....

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4) On increasing the sintering temperature from 600 - 900 °C the height of the low-temperature peak increases and the peak is shifted towards higher temperatures; further increase in the sintering temperature brings about a decrease in the height of this peak. These effects indicate that on raising the sintering temperature from 600 to 900 °C the contact area increases at a rate faster than the rate of the grain growth; on raising the sintering temperature from 900 to 1 000 °C the rate of grain growth becomes faster. There are 7 figures.

ASSOCIATION: Moskovskiy institut stali (Moscow Institute of Steel)

SUBMITTED: February 5, 1962

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L 14990-65 EWT(m)/EWP(w)/EWA(d)/EWP(t)/EWP(b) ASD(f)-2/ASD(m)-3/ASD(c) MJW/  
 ACCESSION NR: AT4048120 JD/JG/MLK S/0000/63/000/000/0055/0064

AUTHOR: Yelyutin, V. P., Natanson, A. K., Mozzhukhin, Ye. I., Vasil'yev, O. A.

TITLE: Internal friction of grade VA-3 tungsten wire

SOURCE: Vsesoyuznaya konferentsiya po relaksatsionny<sup>14</sup>m yavleniyam v metallakh i splavakh. 3d, Voronezh, 1962. Relaksatsionny<sup>21</sup>ye yavleniya v metallakh i splavakh (Relaxation phenomena in metals and alloys); trudy<sup>\*</sup> konferentsii. Moscow, Metallurgizdat, 1963, 55-64

TOPIC TAGS: tungsten wire, tungsten wire annealing, tungsten wire internal friction

ABSTRACT: The authors attempt to find the relationship between the physical and mechanical properties of grade VA-3 tungsten wire and the internal friction in order to improve the procedure for checking wire quality. Special lots of tungsten wire were selected. They differed in the residual elongation after creep tests from zero in the first lot to 1 mm in the second and 6 mm in the third, while the fourth and fifth lots failed. In the same order, the structure changed from coarse grain for the first two, medium grain for the third and fine grain for the fourth and fifth. The wire samples were 1.25, 0.52 and 0.343 mm in diameter and were vacuum heated. The testing temperature was 2700K, load 4.5 kg, duration 4 hrs. Internal friction was measured with wire samples 0.52 mm in diameter and 95 mm long in a

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ACCESSION NR: AT4048120

high temperature relaxation device with a tungsten heater, after which the structure was investigated. A tungsten-rhenium thermocouple measured the temperature. The frequency of the sample was about 1 cycle/sec., and the maximum relative deformation was  $5 \times 10^{-5}$ . The maximum error was not over 10%. Curves in the paper show the relative internal friction obtained by dividing the internal friction at various temperatures by the internal friction at room temperature after annealing at 2100K for 2 hours. By comparing the structure of samples after reheating, it was found that the high temperature maximum of internal friction (2100K for lots 3 and 4 and 1750K for lot 5) was the recrystallization temperature. Similar maxima were found when measuring the internal friction of deformed copper, iron and alloys. It is known that the high temperature maximum of internal friction is higher for fine grain samples in comparison with coarse grain samples. The temperature curves of internal friction obtained after primary heating of lots 1 and 2 did not have a high temperature maximum prior to the limit testing temperature of 2270K. The recrystallization maximum for lots 1 and 2 was at a higher temperature than that used for measuring internal friction. The maximum grain limit when measuring internal friction of lots 3, 4 and 5 after being subjected to recrystallization during primary heating was lower than for lots 1 and 2 due to the grain size. Orig. art. has: 7 figures and 1 table.

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L 14990-65

ACCESSION NR: AT4048120

ASSOCIATION: Moskovskiy institut stali i splavov (Moscow Institute of Steel and Alloys)

SUBMITTED: 11 Nov 63

ENCL: 00

SUB CODE: MM

NO REF SOV: 003

OTHER: 003

Card 3/3



8/0137/64/000/001/0037/0037

ACCESSION NR: AR4018318

SOURCE: RZh. Metallurgiya, Abs. 10258

AUTHOR: Yelyutin, V. P.; Mozshukhin, Ye. I.; Ragavan, R. V.

TITLE: Study of copper powder strengthened with aluminum oxide

CITED SOURCE: Tr. Kuyby'shevsk. aviats. in-t, vy\*p. 16, 1963, 243-258

TOPIC TAGS: copper powder, aluminum oxide, copper alloy

TRANSLATION: Cu-Al<sub>2</sub>O<sub>3</sub> alloys containing 1-10 vol. % Al<sub>2</sub>O<sub>3</sub> were investigated. Powders of the mixture were obtained by two methods: (1) precipitation of Al salt on Cu oxide particles with subsequent reduction, and (2) mechanical stirring of Cu and Al<sub>2</sub>O<sub>3</sub> powders in distilled water in a ball mill for 50 hr. In method 1, use was made of the Al(NO<sub>3</sub>)<sub>3</sub>·9H<sub>2</sub>O. The bulk density of the powders obtained by method 1 was less, and of those obtained by method 2, more than that of pure Cu. As the Al<sub>2</sub>O<sub>3</sub> content was increased, compactibility of the powders was reduced and density of the sintered bars was decreased. Al<sub>2</sub>O<sub>3</sub> introduced by method 1 has a more pronounced effect on shrinkage. The sintered specimens were compacted by hot pressing, then cold-worked by upsetting by 50%. Annealing of cold-worked specimens was carried out

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ACCESSION NR: AR4018318

at 200-700° for 15 to 60 min.  $H_v$  of  $Al_2O_3$  materials was higher than that of pure Cu in all cases. Introduction of  $Al_2O_3$  by method 2 promotes retention of greater hardness to higher temperatures than by method 1. Use of X-ray diffraction also showed higher recrystallization temperatures upon introduction of  $Al_2O_3$ . The activation energy of recrystallization for materials with varying content of  $Al_2O_3$  was determined. A more uniform distribution of  $Al_2O_3$  particles was observed metallographically in the case of method 2. X-ray diffraction analysis also established that in hot-pressed and cold-worked Cu- $Al_2O_3$ , the submicrograins are smaller than in pure Cu treated under the same conditions. O. Padalko

DATE: 11-11-81

SUB CODE: MM

ENCL: 00

Card 2/2

YELYUTIN, V.P.; ANTSIFEROV, V.N.; MOZZHUKHIN, Ye.I.; NATANSON, A.K.

Investigating the effect of dispersed aluminum oxide inclusions  
on certain characteristics of sintered nickel. Porosh. met. 3  
no.4:33-39 J1-Ag '63. (MIRA 16:10)

1. Moskovskiy institut stali i splavov.  
(Powder metallurgy)  
(Nickel-aluminum alloys—Testing)

YELYUTIN, V.P.; ANTISIFEROV, V.N.; MOZZHUKHIN, Ye.I.

Effect of dispersed oxide inclusions on the recrystallization of  
sintered powder nickel. Izv. vys. ucheb. zav.; Chern. met. 6  
no.7:134-139 '63. (MIRA 16:9)

1. Moskovskiy institut stali i splavov.  
(Powder metallurgy) (Recrystallization)

L 50997-65 EWP(e)/EWT(m)/EPR/EWP(t)/EWP(k)/EWP(z)/EWP(b) Pf-l/Pad/Pa-l/  
ACCESSION NR: AP5013325 IJP(c) JD/HW UR/0148/65/000/005/0129/0132  
669.24'715:539.434 38  
39  
8

AUTHOR: Yelyutin, V. P.; Antsiferov, V. N.; Mozzhukhin, Ye. I.; Natanson, A. K.

TITLE: Effect of dispersed additives on the rupture strength of nickel and nickel-aluminum alloy

SOURCE: IVUZ. Chernaya metallurgiya, no. 5, 1965, 129-132

TOPIC TAGS: nickel, sintered nickel alloy, aluminum oxide containing alloy, alloy rupture strength, sintering temperature effect, hot rolling effect, cold rolling effect

ABSTRACT: Specimens of pure nickel and nickel containing 5, 10, and 15 vol%  $Al_2O_3$  or 10 vol%  $NiO \cdot Al_2O_3$ , and of a Ni+4 at% Al alloy containing 10 vol%  $Al_2O_3$  or  $NiO \cdot Al_2O_3$  were synthesized by the powder metallurgy method. The oxide powder particles were max 0.7  $\mu$  in size. The sintering was done in dry hydrogen or vacuum at 1475, 1575, or 1675K. The relative density of sintered materials was 85-92%, which was increased to more than 99.8% by subsequent rolling at 1275C with a reduction of 80% along the height of the specimens. The stress-rupture tests were made under a stress of 3 kg/mm<sup>2</sup> in air at 1115 and 1225K. It was found that the rupture life (at 1115K)

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L 50997-65

ACCESSION NR: AP5013325

of hot-rolled nickel sintered at 1475, 1575, and 1675K in dry hydrogen was practically the same — 21, 20, and 22 hr, respectively. However, nickel sintered in a vacuum at 1475K had a rupture life of only 9 hr. Increasing the sintering temperature from 1475 to 1575K decreased the rupture life of hydrogen-sintered, hot-rolled compositions of Ni with 5, 10, and 15 vol%  $\text{Al}_2\text{O}_3$  from 64, 373, and 578 hr to 11, 36, and 64 hr, respectively. Additional annealing and cold rolling with a 14% reduction increased the rupture life of sintered nickel from 21 to 38 hr, and that of Ni+15 vol%  $\text{Al}_2\text{O}_3$  composition from 578 to 6060 hr. The rupture life of nickel containing 10 vol%  $\text{Al}_2\text{O}_3$ , introduced by precipitation of aluminum nitrate, was 270 and 6 min at 1115 and 1275K, respectively, compared with 373 and 53 min for Ni+10%  $\text{Al}_2\text{O}_3$  composition obtained by mechanical mixing of powders. A composition of nickel containing nickel spinel and a composition on a base of Ni+4 at% Al alloy containing 10 vol%  $\text{Al}_2\text{O}_3$  or NiO· $\text{Al}_2\text{O}_3$  had a rupture life of 121, 164, and 171 hr at 1115K, and 23, 29, and 26 hr at 1225K. In general, the rupture life of the investigated compositions is determined by the condition of the metallic matrix which, in turn, depends on the preliminary treatment of the specimens and the amount of the dispersed phase. Orig. art. has: 1 figure and 3 tables. [MS]

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L 50997-65

ACCESSION NR: AP5013325

ASSOCIATION: Moskovskiy institut stali i splavov (Moscow Institute for Steel and Alloys)

SUBMITTED: 09Jul64

ENCL: 00

SUB CODE: MM, AS

NO REF SOV: 001

OTHER: 002

ATD PRESS: 4014

*pr*  
Card 3/3

L 53689-65 EWG(j)/EWT(m)/ENP(e)/EPF(c)/EPR/T/ENP(t)/ENP(x)/ENP(z)/ENP(b)/EWA(c)  
 Pf-4/Pr-4/Ps-4/Pad S/0126/65/019/003/0389/0396  
 ACCESSION NR: AP5008784 IJP(c) JD/HW 532.72+621.762

AUTHOR: Yelyutin, V. P.; Mozzhukhin, Ye. I.; Yakovlev, S. G.

TITLE: Self-diffusion of cobalt in specimens of cobalt and a Co + Al<sub>2</sub>O<sub>3</sub> composition prepared by powder metallurgy methods

SOURCE: Fizika metallov i metallovedeniye, v. 19, no. 3, 1965, 389-396

TOPIC TAGS: cobalt, self diffusion, alumina, powder metallurgy

ABSTRACT: The effect of dispersed inclusions of Al<sub>2</sub>O<sub>3</sub> on the self-diffusion of cobalt was studied. Hot-worked specimens were prepared from pressed blanks sintered at 1475°K in hydrogen for 2 hrs. It is shown that both in cobalt and in Co-Al<sub>2</sub>O<sub>3</sub> compositions prepared by powder metallurgy methods, diffusion processes occur at higher rates than in dense cobalt prepared by the usual metallurgical methods. The difference between the coefficients of self-diffusion for sintered and dense cobalt decreases with temperature. The temperature dependence of the effective coefficient of self-diffusion of cobalt in powder metallurgy specimens changes at 1175°K which is the result of diffusion processes along grain boundaries

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L 53689-65

ACCESSION NR: AP5008784

of sintered specimens at low temperatures. Dispersed inclusions of alumina increase the coefficients of self-diffusion. The formation of inclusion aggregates is accompanied by a reduction both in the effective coefficient of self diffusion and in the coefficient of self-diffusion within the grain at high temperatures. Orig. art. has: 3 figures, 12 formulas, 1 table.

ASSOCIATION: Moskovskiy institut stali i splavov (Moscow Institute of Steel and Alloys)

SUBMITTED: 27Apr64

ENCL: 00

SUB CODE: MM

NO REF SOV: 002

OTHER: 007

Card 1/2

MOZZHUKHIN, Yu.P.

Additional potential for increasing meat production. Veterinariia  
35 no. 7:83-84 J1 '58. (MIRA 11:7)

1. Direktor Amurskoy oblvethaklaboratorii.  
(Tissue extracts)

MOZZHUKHIN, Yu.P.

Some peculiarities of the regional epizootology of infectious diseases of young farm animals in Amur Province. Veterinariia 36 no.4:33-36 Ap '59. (MIRA 12:7)

1. Direktor Amurskoy oblastnoy vetbaklaboratorii.  
(Amur Province--Communicable diseases in animals)

MOZZHUKHIN, YU. P.

"About the seasonal infestations of horses with Haemosporidia in Amursk Oblast'."

Veterinariya, Vol. 38, No.5, 1961

Mozzhukhin, Yu. P. -(Amur Oblast' Veterinary Bacteriological Station)

MOZZHUKHIN, YU.P.

~~MOZZHUKHIN, YU.P.~~ (Amur Oblast Veterinary Bacteriological Laboratory)

"Grounds for pasteurellosis enzooties of horned cattle in the Amur River region"

Veterinariya, vol. 39, no. 4, April 1962 p. 29

MOZZHUKHIN, Yu.P.

~~Causes of the enzootic occurrence of pasteurellosis of cattle~~  
in the Amur Valley. Veterinarin 39 no.4:29-30 Apr '56.

(MIRA 17:10)

1. Amurskaya oblastnaya veterinarno-bakteriologicheskaya  
laboratoriya.

GUDKIN, A.F., kand. sel'skokhozyaystvennykh nauk; MOZZHUKHIN, Yu.P., starshiy  
prepodavatel'

Prophylaxis of hypovitaminosis A in calves and young pigs.  
Veterinariia 41 no.4:63-65 Ap '65.

(MIRA 18:6)

1. Blagoveshchenskiy sel'skokhozyaystvennyy institut.

CHUKIN, A.F., dotsent; MOZHEKHIN, Yu.P. prepodavatel'

Measures for controlling paratyphoid fever in cattle and horses.  
Veterinariia 42 no.5:52-54 My '65. MIRA 1965

1. Blagoveschenskiy sel'skokhozyaystvennyy inst. 225.



FRUNZE, Mikhail Vasil'yevich; MOZZHUKHIN, Ye.P.; KUZNETSOV, V.B.

[Selected works] Izbrannye proizvedeniia. Moskva,  
Voenizdat, 1965. 526 p. (MIRA 18:8)

GORDEYEVA, K.V.; MOZZHUKHINA, A.S.

Changes in certain physical and chemical properties of plasma proteins  
in animals in acute radiation sickness. Med.rad. 4 no.10:13-17 0 '59.  
(MIRA 13:2)

(RADIATION INJURY exper.)  
(BLOOD PROTEINS radiation eff.)

MOZZHUKHINA, L. A. Cand Med Sci -- (diss) "Comparative <sup>evaluation</sup> ~~estimation~~  
erosion<sup>s</sup>  
of methods of treatment for ~~exerise~~ and chronic inflammatory  
diseases of the cervix of the uterus. (Immediate and remote results.)"  
Kishinev, 1957. 14 pp 20 cm. (Kishinev State Med Inst). 200 copies  
(KL, 23-57, 117)

~~233-~~  
125

MOZZHUKHINA, L.A. (Kishenev)

Prevention and treatment of erosions and chronic inflammations of  
the cervix uteri. Fel'd. i akush. 22 no.3:19-22 Mr '57  
(UTERUS--DISEASES) (MIRA 10:5)